

IN THE CLAIMS

1. (currently amended) An apparatus to control a brushless Direct Current (DC) motor equipped with a rotator, the apparatus comprising:

a converting unit to convert Alternating Current (AC) power to polyphase AC power and supply the polyphase AC power to the brushless DC motor;

a rotator operation detecting unit to detect operation information of the rotator; and

a control unit to predict a phase commutation time of the polyphase AC power at least in part from zero crossing point detection information from the polyphase AC power, or from the detected operation information of the rotator, or from both thereof and control an ignition time of an ignition phase current to be earlier than the phase commutation time.

2. - 4. (canceled)

5. (original) The brushless DC motor control apparatus according to claim 1, wherein the control unit controls all phase currents of the polyphase AC power, supplied to the brushless DC motor, to be conducted during a period between the ignition time of the ignition phase current and the phase commutation time.

6. (original) The brushless DC motor control apparatus according to claim 1,

wherein the converting unit comprises:

a converter to convert the AC power to DC power;

an inverter to convert the DC power to the polyphase AC power; and

a capacitor to connect between the converter and the inverter.

7. (original) The brushless DC motor control apparatus according to claim 6, wherein the control unit controls the ignition time of the ignition phase current supplied to the brushless DC motor by generating an inverter control signal and outputting the inverter control signal to the inverter.

8. (currently amended) A method to control a brushless DC motor equipped with a rotator and supplied with polyphase AC power, the method comprising:  
predicting an ignition phase commutation time of the polyphase AC power using at least in part from zero crossing point detection information from the polyphase AC power, or from operation information of from the rotator, or from both thereof; and  
controlling an ignition time of an ignition phase current to be earlier than the phase commutation time.

9. - 11. (canceled)